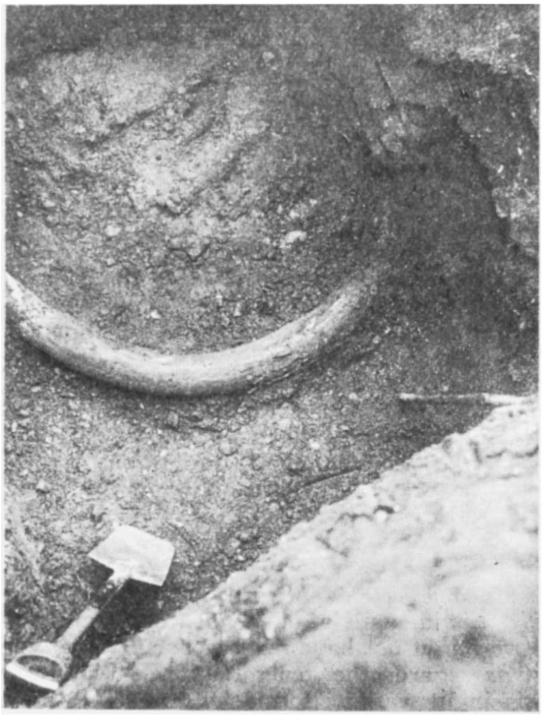
photograph, taken by Mr. Frank Woolnough with the camera suspended over the pit, shows the tusk *in situ,* it being afterwards removed by my man Baxter and myself, who, finding it very friable, had to use great care in getting it up intact.

The remains have been sent away for identification, but it was obvious that they presented the same amount of mineralisation as was present in the human bones found by me at exactly the same horizon at Ipswich, in October of last year. As in this latter case the remains were found lying partly embedded in glacial sand and partly in the different overlying material, also in both cases the amount of iron staining is very slight.

This discovery appears to me to be of some importance, and affords an answer to those of my critics who were dissatisfied with my discovery of the human skeleton because I had not found any other mammalian bones at the same horizon at which this occurred.



It is also an additional piece of evidence that the top of the middle glacial sand was a land-surface in pre-chalky boulder clay times. J. Reid Moir.

12 St. Edmund's Road, Ipswich, May 5.

Les Éclipses d'Hiver et les Éclipses d'Été.

Nous venons d'assister à un phénomène très curieux le 17 avril dernier. Au premier abord il paraît avoir été le résultat d'une faveur exceptionnelle d'Éole. Monsieur Angot, le savant Directeur du bureau central météorologique de France, a compulsé avec soin l'histoire de la science qu'il cultive si assidûment, il est arrivé à l'idée que les astronomes faisant d'immenses préparatifs pour observer l'éclipse à terre avaient très peu de chance de rencontrer un ciel serein permettant d'arriver à des mesures angulaires irréprochables; il leur en attribuait huit sur cent.

Monsieur Angot oubliait que l'éclipse qui a soulevé une si vive émotion se produisait dans les jours froids du printemps, que les vents soufflaient dans la direction de l'Est ou du Nord et que, par conséquent, le refroidissement produit par l'éclipse devait très difficilement déterminer la formation de nuées suffisamment épaisses pour empêcher d'observer le Soleil. D'après le compte rendu qui m'est communiqué des treize ascensions exécutées à Paris par Messieurs Bans et Barbotte, le refroidissement a été très énergique; à la hauteur de 2500 mètres ou ils étaient parvenus ils ont constaté que leur thermomètre était descendu à plusieurs degrés centigrades au-dessous de zéro. Cependant grâce à la constitution atmosphérique qui est fréquente en pareille saison les observations terrestres ont été partout irréprochables. Si l'éclipse eut été réellement totale au lieu de l'être d'une façon hypothétique, on aurait vu les couronnes, les protubérances d'une façon merveilleuse sans avoir besoin comme l'ont fait si souvent Sir Norman Lockyer et J. Janssen de se transporter dans les Indes, dans l'Indo-Chine, en Égypte et dans les îles les plus isolées de l'Océan Pacifique.

Mais il existe une circonstance fort intéressante dont Mr. Angot n'a pas tenu compte et qui justifie parfaitement les efforts qu'a fait récemment le fils de Sir Norman pour suivre l'exemple de son illustre père.

En été dans le voisinage de la fin de juin, le disque du Soleil est réduit à son minimum parce que la terre arrive à son aphélie; alors notre satellite a beaucoup moins de peine à le recouvrir. Si par hasard à l'heure de l'éclipse la lune est voisine de son périgée le phénomène atteint son maximum; il peut durer plusieurs centaines de secondes, et on a tout le temps d'explorer le voisinage de l'astre qui malheureusement ne peut nous éclairer sans nous éblouir et nous cacher par conséquent tout ce qui se passe autour de lui.

Mais à cette époque, au moins dans notre hémisphère, l'air est saturé de vapeurs de sorte que les belles observations d'éclipse sont très rares; il est excessivement difficile d'en profiter pour résoudre les magnifiques problèmes dont on s'occupe si vivement depuis qu'Arago s'est immortalisé en les signalant lors de la grande éclipse totale visible à Perpignan en 1842. C'est ce qui fait qu'on a attaché tant de prix aux travaux de Sir Norman qui a imaginé et pratiqué avec tant d'habileté les recherches spectrographiques autour du Soleil sans se préoccuper des éclipses. Il est bon de faire remarquer que l'hémisphère austral se trouve à ce point de vue dans une situation beaucoup plus favorable que le nôtre et que les astronomes de Sydney ont beaucoup plus de chance que les nôtres d'observer de belles éclipses totales. En effet lorsqu'elles arrivent dans leur hiver qui correspond à notre été le Soleil est à son minimum.

Je ne peux terminer sans faire remarquer que l'éblouissement produit par le Soleil diminue rapidement par l'altitude à laquelle parvient l'aéronaute quoique la puissance calorifique du Soleil augmente. Il en résulte qu'on voit certaines étoiles plus voisines de l'astre que si l'on restait à terre. Par conséquent en s'élevant très haut lors du crépuscule ou de l'aurore on peut explorer d'assez près la banlieue du Soleil. C'est même cette circonstance qui faisait que Le Verrier avait désiré dans les dernières années de sa carrière faire exécuter des ascensions à l'observatoire de Paris pour découvrir la planète Vulcain à l'existence de laquelle il croyait fermement.

On peut voir du reste dans les comptes de ce grand établissement les dépenses qu'il a faites, lorsqu'il m'a chargé en 1875 de remettre en état le ballon de l'observatoire, malheureusement cet appareil avait été si maltraité par les aéronautes qui l'avaient eu

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entre les mains pendant la durée du siège qu'il fut impossible de le réparer et que les intentions presque testamentaires de Le Verrier n'ont pu recevoir aucune exécution. W. DE FONVIELLE.

St. Broing, 23 avril.

The Ammonia Flame.

It is generally recognised that Strutt's discovery of an active form of nitrogen is one of the most interesting results of recent investigations: it may be opportune, then, to direct attention to a phenomenon which seems to have some connection with active nitrogen. The colour of the flame of ammonia burning in oxygen is yellow, and of the same tint as the nitrogen glow in Strutt's experiment; the spectrum of the light emitted is similar. The structure of the flame is also exceptionally interesting; it consists of an inner bright yellow cone and an outer, almost non-luminous, flame. It would seem that the ammonia is first of all split up into nitrogen and hydrogen, and that the light of the inner cone is due to the combination of nitrogen atoms to nitrogen molecules, as is suggested in the case of the nitrogen glow, while in the outer flame hydrogen burns to water and some nitrogen combines with oxygen to give nitric oxide. An analysis of the products of combustion showed that nitrogen and water were the main resulting substances, but that nitrogen peroxide was also produced in considerable quantity.

There are one or two other points which support this view of the combustion. The shape of the flame is interesting; most flames which are due to the combination of substances have a pointed cone with more or less inflected sides, when the gases issue from a circular orifice; but in the ammonia flame the inner cone always asumes a rounded apex like a thimble, the outer flame being similar to the usual inflected pointed type of flame. The explanation of the difference in the structure of the flames appears to me to be plain, if in the inner cone a simple decomposition is occurring at a distance from the orifice depending on the velocity of the issuing stream of ammonia, while in the outer cone a combination is occurring with oxygen which is being drawn up along with the flame, as in an ordinary combustion.

Another point about the combustion which seems to support this view of the actions occurring in the flame is that it is difficult apparently to make oxygen burn in an atmosphere of ammonia or to get mixed oxygen and ammonia to burn, though such a mixture may explode if in correct proportions. I think, then, the above view of the cause of the luminosity is preferable to that which would ascribe it to the production of nitric oxide. ALFRED C. EGERTON.

R.M.A., Woolwich.

REPORT OF THE TUBERCULOSIS COMMITTEE.

In a report just issued, the Departmental Committee on Tuberculosis, appointed in February by the Chancellor of the Exchequer "to report at an early date upon the considerations of general policy in respect of the problem of tuberculosis in the United Kingdom in its preventive, curative, and other aspects, which should guide the Government and local bodies in making or aiding provision for the treatment of tuberculosis in sanatoria or other institutions or otherwise," has made a pronouncement the importance of which will be realised only as the advice followed in that report comes to be followed and its suggested provisions put into force.

Up to a recent date the treatment of tuberculosis has been left, to a very large extent, to voluntary effort, and whilst excellent work has been done by the various associations that have undertaken this work, aided later by municipal and other health authorities, and eventually by Government and the Local Government Board, there has been a sad lack of coordination and want of organisation. This has militated seriously against the success of the campaign undertaken against the white plague. In the report now before us we have the "opinion" of a body of experts who have considered the question of the prevention and treatment of tuberculosis on what may be described as a national scale. These experts have already been engaged in some department or other of the crusade. Legislators, administrators, heads of institutions specially designed for the treatment of tuberculosis, medical officers of health, and other members of the medical profession, each in turn has brought some special knowledge and experience to bear, with the result that we have no pressing forward of incomplete or ill-considered schemes, no exaggerated claim for any special method of treatment, and no presentation of a panacea for all cases of tuberculosis.

The committee has taken its duties and responsibilities very seriously, and is evidently impressed with a sense of the importance of its functions. It has looked beyond those who are already in an advanced stage of tuberculosis, and has brought within its purview the measures that must be adopted to prevent the affection of those who are still sound or who suffer but slightly. Further than this, however, it is in full accord with the framers of the Act that much of what is now being contemplated is based on the knowledge that has been gained by research, in the ward to some extent, but primarily in the laboratory. It is impossible, of course, to affirm that in time we might not have reached our present viewpoint as regards the general treatment of tuberculosis in its various forms by a careful clinical study of the disease and a prolonged study, by rule-of-thumb methods, of the various drugs and certain of the modes of treatment; but it may be affirmed, and that most strongly, that this could not have been during the life of the present generation, and probably for several of those succeeding. Experimental investigations carried on by Villemin and Chauveau, by Burdon Sanderson, by Cohnheim and Salomonsen, and finally by Robert Koch, brought us, however, by a "short cut" to a point from which the rate of advance along the above and other lines has been phenomenally rapid; of this we have evidence in the report now before us.

The first aim under the Insurance Act is to find out tuberculous patients, and this, it is suggested by the Committee, is to be done through the "dispensary"; the second is to prevent the spread of the disease by the administrative work of our public health departments and our hospitals:

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